

WHAT IS CLAIMED IS:

1. A non-aqueous electrolyte secondary battery comprising:

5 a negative electrode comprising a carbonaceous material;

an organic electrolyte comprising a solute and a solvent; and

a separator,

wherein said solvent comprises ethylene carbonate (EC),
10 propylene carbonate (PC), a chain carbonate and phenylethylene carbonate; the content of said chain carbonate, ethylene carbonate (EC) and said propylene carbonate (PC) are from 50 to 90 vol%, from 5 to 45 vol% and from 5 to 45 vol%, respectively, based on the total
15 volume of said ethylene carbonate (EC), said propylene carbonate and said chain carbonate; and the content of said phenylethylene carbonate is from 0.1 to 5.0 wt% based on the total weight of said electrolyte.

2. The non-aqueous electrolyte secondary battery
20 according to Claim 1, wherein the content of said chain carbonate is 60 to 80 vol% based on the total volume of said ethylene carbonate (EC), said propylene carbonate and said chain carbonate.

3. The non-aqueous electrolyte secondary battery
25 according to Claim 2, wherein the content of said chain carbonate is 65 to 75 vol% based on the total volume of

said ethylene carbonate (EC), said propylene carbonate and said chain carbonate.

4. The non-aqueous electrolyte secondary battery according to Claim 1, wherein the content of said ethylene carbonate (EC) is 15 to 35 vol% based on the total volume of said ethylene carbonate (EC), said propylene carbonate and said chain carbonate.

5. The non-aqueous electrolyte secondary battery according to Claim 4, wherein the content of said ethylene carbonate (EC) is 15 to 25 vol% based on the total volume of said ethylene carbonate (EC), said propylene carbonate and said chain carbonate.

6. The non-aqueous electrolyte secondary battery according to Claim 1, wherein the content of said propylene carbonate (PC) is 5 to 25 vol% based on the total volume of said ethylene carbonate (EC), said propylene carbonate and said chain carbonate.

7. The non-aqueous electrolyte secondary battery according to Claim 6, wherein the content of said propylene carbonate (PC) is 10 to 20 vol% based on the total volume of said ethylene carbonate (EC), said propylene carbonate and said chain carbonate.

8. The non-aqueous electrolyte secondary battery according to Claim 1, wherein the content of said phenylethylene carbonate is from 0.2 to 5.0 wt% based on the total weight of said electrolyte.

9. The non-aqueous electrolyte secondary battery according to Claim 8, wherein the content of said phenylethylene carbonate is from 0.5 to 2.5 wt% based on the total weight of said electrolyte.

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